

What is claimed

1. A method of forming a TFT-LCD device on a transparent insulating substrate wherein a transistor is defined on the transparent insulating substrate, the method comprises the following steps of:

forming a photosensitive layer on said transparent insulating substrate to cover said transistor and said transparent insulating substrate ;

performing a defocused exposing procedure by applying a mask with plural independent spot patterns and a contact hole pattern to define patterns on said photosensitive layer, wherein a distance between two adjacent said independent spot patterns is smaller than a resolution of an exposure system while a distance between adjacent said independent spot pattern and said contact hole pattern is larger than said resolution of said exposure system, wherein a first area of said photosensitive layer corresponding to said independent spot patterns is exposed incompletely while a second area thereof corresponding to said contact hole pattern is exposed completely;

developing said photosensitive layer to remove partial said photosensitive layer of said first area for forming wave-like surfaces thereon and to remove partial said photosensitive layer of said second area for forming a contact hole thereon; and

forming a pixel electrode on said photosensitive layer to fill said contact hole to electrically connect to said transistor, wherein said pixel electrode rises and falls with the surface of said photosensitive layer to serve as a rough diffuser member.

2. The method of Claim 1, wherein a size of said contact hole pattern is larger than a size of said independent spot pattern.

3. The method of Claim 1, wherein sizes and shapes of said independent spot patterns can be adjusted to control roughness degrees

of said pixel electrode.

4. The method of Claim 1, wherein sizes and shapes of said independent spot patterns can be adjusted to control roughness degrees of said photosensitive layer.

5. The method of Claim 1, wherein said independent spot patterns are defined by forming hollow areas on said mask.

6. The method of Claim 1, wherein said independent spot patterns are defined by forming the covering area on said mask with chromium films.

7. A method of forming a TFT-LCD device on a transparent insulating substrate wherein said transparent insulating substrate has a gate structure and an insulating layer covered thereon, and a drain structure and a source structure formed on said insulating layer, the method comprises the following steps of:

forming a photosensitive passivation layer on said transparent insulating substrate to cover said source structure, said drain structure and said insulating layer ;

performing a patterning procedure by applying a mask with plural independent spot patterns and a contact hole pattern to define said photosensitive passivation layer, wherein a first area of said photosensitive passivation layer corresponding to said independent spot patterns is exposed incompletely while a second area thereof corresponding to said contact hole pattern is exposed completely;

developing said photosensitive passivation layer to remove partial said photosensitive layer of said first area for forming wave-like surfaces thereon and to remove partial said photosensitive material of said second area for forming a contact hole thereon; and

forming a pixel electrode on said photosensitive passivation layer to fill said contact hole to electrically connect with said drain structure, wherein said pixel electrode rises and falls with the surface of said photosensitive passivation layer to serve as a rough diffuser member.

8. The method of Claim 1, wherein a size of said contact hole pattern is larger than a size of said independent spot pattern.

9. The method of Claim 1, wherein sizes and shapes of said independent spot patterns can be adjusted to control roughness degrees of said pixel electrode.

10. The method of Claim 1, wherein sizes and shapes of said independent spot patterns can be adjusted to control roughness degrees of said photosensitive passivation layer.

11. The method of Claim 1, wherein said independent spot patterns are defined by forming hollow areas on said mask.

12. The method of Claim 1, wherein said independent spot patterns are defined by forming the covering area on said mask with chromium films.

13. The method of Claim 1, wherein a first distance between two adjacent said independent spot patterns is smaller than a resolution of an exposure system while a second distance between adjacent said independent spot pattern and said contact hole pattern is larger than said resolution of said exposure system.

14. A method of forming a TFT-LCD device on a transparent

insulating substrate, the method comprises the following steps of:

defining a gate structure on said transparent insulating substrate ;

forming an insulating layer on said gate structure and said transparent insulating substrate ;

forming a semiconducting layer on said insulating layer above said gate structure ;

defining an etching stopper on said semiconducting layer above said gate structure ;

forming a source structure and a drain structure on sidewalls of said etching stopper ;

forming a photosensitive insulating passivation layer on said transparent insulator layer to cover said source structure and said drain structure ;

applying a mask having plural independent spot patterns to perform a defocused exposing procedure to said photosensitive insulating passivation layer;

developing said photosensitive insulating passivation layer to remove partial said photosensitive insulating layer corresponding to said independent spot patterns for forming wave-like surfaces thereon; and

forming a pixel electrode on said photosensitive insulating layer to electrical connect with said drain structure, wherein said pixel electrode rises and falls with said wave-like surfaces of said photosensitive insulating passivation layer.

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~~14~~. The method of Claim 13, wherein said insulating layer is selected from a group of silicon nitride, silicon oxide, silicon oxynitride and combination thereof.

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~~15~~. The method of Claim 13, wherein sizes and shapes of said independent spot patterns can be adjusted to control roughness degrees of said pixel electrode.

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~~16~~. The method of Claim 13, wherein sizes and shapes of said independent spot patterns can be adjusted to control roughness degrees of said photosensitive insulating passivation layer.

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~~17~~. The method of Claim 13, wherein said independent spot patterns are defined by forming hollow areas on said mask.

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~~18~~. The method of Claim 13, wherein said independent spot patterns are defined by forming the covering area on said mask with chromium films.

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~~19~~. The method of Claim 13, wherein a distance between two adjacent said independent spot patterns is smaller than a resolution of an exposure system.